

Notice of Allowability

Application No.

10/791,333

Applicant(s)

CHURCHILL ET AL.

Examiner

Art Unit

LAM T. MAI

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 713/05.
2. ☒ The allowed claim(s) is/are 1-2,5-9, 11,13-34.
3. ☒ The drawings filed on 02 March 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 10/19/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr Roger W. Blakely, Jr. Registration # 25,831 on 8/5/2005.

The application has been amended as follows:

Claim 5, line 1, delete "4-" after phrase "The DAC of claim" and

Claim 6, line 1, delete "4-" after phrase "The DAC of claim".

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Allowable Subject Matter

Claims 1-2, 5-9, 11, and 13-34 are allowable.

The following is an examiner's statement of reasons for allowance: Claim 1 is allowed over the prior art of record. The prior art, considered individually or in combination, fails to show or suggest the claim multi-channel digital to analog converter comprising, among other limitation, a novel and unobvious limitation of "a plurality of buffer amplifiers, each buffering a respective node between resistors of the primary resistor string, outputs of the buffer amplifiers and ends of

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the primary resistor string define $2 + 1$ primary string nodes and a plurality M of B bit secondary resistor strings, the nodes between resistors and ends of each secondary resistor string defining $2 + 1$ secondary string nodes" structurally and functionally interconnected with other limitations in the manner as cited in claim 2.

Claim 13 allowed over the prior art of record. The prior art, considered individually or in combination, fails to show or suggest the claim multi-channel digital to analog converter comprising, among other limitation, a novel and unobvious limitation of "a plurality of buffer amplifiers, each buffering a respective node between resistors of the primary resistor string, outputs of the buffer amplifiers and ends of the primary resistor string define $2 + 1$ primary string nodes and a plurality M of B bit secondary resistor strings, the nodes between resistors and ends of each secondary resistor string defining $2 + 1$ secondary string nodes" structurally and functionally interconnected with other limitations in the manner as cited in claims 14-23.

Claim 24 is allowed over the prior art of record. The prior art, considered individually or in combination, fails to show or suggest the claimed method multi-channel digital to analog converter comprising, among other limitation, a novel and unobvious limitation of "selective coupling adjacent pairs of nodes in each secondary string to opposite ends of each tertiary resistor string and selectively coupling one nodes in each tertiary resistor string, each as one output of the multiple channel digital to analog conversion" structurally and functionally interconnected with other limitation in the manner as cited in claims 25-30.

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Claim 31 is allowed over the prior art of record. The prior art, considered individually or in combination, fails to show or suggest the claimed multi-channel digital to analog converter comprising, among other limitation, a novel and unobvious limitation of "a plurality of buffer amplifiers, each buffering a respective node between resistors of the primary resistor string, outputs of the buffer amplifiers and ends of the primary resistor string define $2 + 1$ primary string nodes and a plurality M of B bit secondary resistor strings, the nodes between resistors and ends of each secondary resistor string defining $2 + 1$ secondary string nodes" structurally and functionally interconnected with other limitations in the claim.

Claim 32 is allowed over the prior art of record. The prior art, considered individually or in combination, fails to show or suggest the claimed multi-channel digital to analog converter comprising, among other limitation, a novel and unobvious limitation of "a plurality of buffer amplifiers, each buffering a respective node between resistors of the primary resistor string, outputs of the buffer amplifiers and ends of the primary resistor string define $2 + 1$ primary string nodes and a plurality M of B bit secondary resistor strings, the nodes between resistors and ends of each secondary resistor string defining $2 + 1$ secondary string nodes" structurally and functionally interconnected with other limitations in the manner as cited in claims 5-9.

Claim 33 is allowed over the prior art of record. The prior art, considered individually or in combination, fails to show or suggest the claimed multi-channel digital to analog converter comprising, among other limitation, a novel and

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unobvious limitation of "a plurality of buffer amplifiers, each buffering a respective node between resistors of the primary resistor string, outputs of the buffer amplifiers and ends of the primary resistor string define $2 + 1$ primary string nodes and a plurality M of B bit secondary resistor strings, the nodes between resistors and ends of each secondary resistor string defining $2 + 1$ secondary string nodes" structurally and functionally interconnected with other limitations in the manner as cited in claim 11.

Claim 34 is allowed over the prior art of record. The prior art, considered individually or in combination, fails to show or suggest the claimed multi-channel digital to analog converter comprising, among other limitation, a novel and unobvious limitation of "a plurality of buffer amplifiers, each buffering a respective node between resistors of the primary resistor string, outputs of the buffer amplifiers and ends of the primary resistor string define $2 + 1$ primary string nodes and a plurality M of B bit secondary resistor strings, the nodes between resistors and ends of each secondary resistor string defining $2 + 1$ secondary string nodes" structurally and functionally interconnected with other limitations in the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Cited References

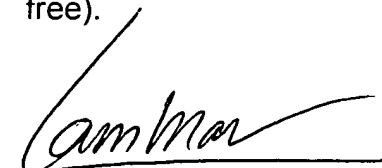
The prior art made of record and not replied upon is considered pertinent to application's disclosures. The cited references relate to multi-channel digital to analog converter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM T. MAI whose telephone number is (571)272-1807. The examiner can normally be reached on 6:00 am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pascal J. Robert can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Lam T. Mai', is written over a horizontal line.

Lam T. Mai
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